

The Public Value of Adult Learning: Skills and Social Productivity

Leon Feinstein and Ricardo Sabates

June 2007

Send correspondence to:

Dr. Leon Feinstein
Centre for Research on the Wider Benefits of Learning
Institute of Education
20 Bedford Way
London, WC1H 0AL
L.Feinstein@ioe.ac.uk

Abstract

In this paper, we provide an overview of the findings of the Centre for Research on the Wider Benefits of Learning on the benefits of adult learning. We set out an overview of the conceptual work undertaken, so as to clarify in a single, general framework the mechanisms for achievement of the wider benefits of learning. We describe within this framework the empirical findings on the benefits of adult learning, particularly with respect to adult health. Finally, we set out the possible barriers for why, despite substantial evidence that adult learning is very important for people's lives and that the skills people developed through wider forms of educational provision are key for a large number of health and social outcomes, there is not greater investment in adult education.

Introduction

This paper describes findings from the last seven years of research of the Centre for Research of the Wider Benefits of Learning, which was set up in 1999 by the Department of Education and Employment, as it then was, based on the recognition that education has wider benefits. In other words, education is not only about developing economic productivity and economic growth, jobs and employment, but also has wider implications for the lives of individuals, families and society. Although the existence of the wider benefits of education has been argued since the time of Ancient Greece (see Weiss, 1995), empirical evidence to support that argument in a modern context is limited and there are not clear conceptual frameworks for clarifying both the wider outcomes of education and the mechanisms by which education may impact upon such outcomes. For this reason, the work of the Centre has focused on understanding the multiple ways in which learning may impact upon wider outcomes, modelling and measuring the impact of learning, and translating this impact in monetary terms in order to inform government departments about the broader returns to investments in education.

Learning should not be reduced to education provided by schools or higher education institutions. There are important benefits to adult learning. For example, work-based adult training has important economic returns (Blundell, Dearden and Meghir, 1996; Feinstein, Galindo-Rueda and Vignoles, 2004), achieving qualifications during adulthood improves women's chances of re-entering into the labour market (Jenkins et al. 2003; Jenkins, 2006), participation in adult learning has positive effects on changes in smoking, exercise taken, and life satisfaction (Feinstein and Hammond, 2004). However, a wider definition of learning does not mean just adult learning, but lifelong learning. To this end, the focus of our work has been on trying to understand the relative roles of learning at different ages, the ways in which educational provision, in its broadest sense, can support people and communities in having lifetime experiences of learning, and the benefits of those experiences.

Our basic argument for the wider benefits of learning is that qualifications matter, basic skills matter, vocational skills matter and academic skills matter. However, there are also other wider skills that are often neglected and which are not only important in the labour market, but also in the formation of basic skills and for the achievement of qualifications. **These wider skills may have essential implications for the wellbeing of individuals and society.** Therefore, to focus only on achievement of qualifications as an immediate outcome of learning understates the role that learning can play in the lives of individuals and communities. This paper aims to classify the immediate outcomes of learning, puts forward a model for the understanding of how learning impact on outcomes, reviews some of the empirical evidence on the impact of education on wider outcomes and concludes with the implications of the work of the Centre for public policy.

A Threefold Classification of the Immediate Outcomes of Learning

Immediate outcomes of learning can be classified into three different groups:

- skills, competencies and beliefs
- social networks
- qualifications

These immediate outcomes are ontologically different and, although there are important links between them, need to be treated separately.

Skills, Competencies and Beliefs

Skills, competencies and beliefs are features of the individual. They include a very wide range of cognitive skills, technical and vocational skills, social and communication skills, resilience and self-concepts. In human capital theory education is an implicit investment that leads to labour productivity through enhancement of skills and competencies that are of value in the production of goods and services. These skills need not be clearly defined in specific terms a priori as the theory is general in nature, emphasising that what is of value in economic production will earn a wage return in proportion to its marginal productivity. However, standard economic analyses emphasise the importance of cognitive ability, technical skills and soft skills, such as social and communication skills.

Resilience is a construct describing positive adaptation in the face of adversity (Schoon and Bynner, 2003). It is not a personality attribute, but rather a process of positive adaptation in response to significant adversity or trauma (Luthar, Cicchetti, and Becker, 2000). For example, the experience of disadvantage early in life may for less resilient individuals may weaken their ability to adapt to future challenges (Brooks-Gunn, 1995).

Self-concepts concern an individual's perception of themselves, such as of their own abilities and worth. They depend on the information available to the individual and the cognitive ability to process this information (Markus and Wurf, 1987). Self-concepts are multi-dimensional (Shavelson and Marsh, 1986) varying across a range of different domains, for example relating to academic capabilities, social capabilities, or general self-worth. Self-concepts develop whilst children are at school. Amongst very young children, self-concept is consistently high, but with increasing life experience children learn their relative strengths and weaknesses. In general, their level of self-concept declines, becomes more differentiated with age, and becomes more highly correlated with external indicators of competence, such as skills, accomplishments, and the opinions of significant others (Marsh, 1985; Marsh, 1990; Shavelson and Marsh, 1986).

The belief or perception, for example, that school and learning is unpleasant is a barrier to lifelong learning. Adults with previous negative or unpleasant experiences of learning are not likely to engage in learning unless they believe that they are able to learn and that if something is confusing does not mean that it is impossible to understand. For these adults, their learning experiences in adulthood should be also about unlearning, learning that redresses or changes individuals' perceptions towards learning. The more adult learning can redress this balance the more successful adult learning will be in creating positive learning outcomes for those most disadvantaged

by prior experiences of learning. This is not about the acquisition of qualifications, although related to it in important ways.

In summary, skills, competencies and beliefs are features of the individual that are impacted by learning in very complex ways and with very important implications for learning outcomes.

Social Networks

Social networks are distinct to skills, competencies and beliefs in that a network is not a feature of an individual, but a feature of society. Social networks have been conceptualised in terms of different forms of social capital (Coleman, 1990; Putnam, 1995). The most basic form of social capital is bonding social capital, which coalesces around a single, shared identity, and tends to reinforce the confidence and homogeneity of a particular group. Bridging social capital refers to horizontal social networks that extend beyond homogenous groups. This form of social capital involves cross-cutting networks amongst people of various ethnic, cultural, and socio-demographic backgrounds. Linking social capital is characterised by connections with individuals and institutions with power and authority. This is theorised in terms of vertical rather than horizontal networks within social hierarchies.

We take the view that the phrase social capital is important in focussing attention on the transaction between an individual and his/her social network, and that the form that the social network takes has huge implications for individuals' lives. An important aspect of the educational experiences is that it involves the engagement of individuals in collective experiences of learning and development. This can have positive and negative effects, bringing benefits but also risks. One of the key influences of education may be in terms of changes to the social networks in which individuals take part, as well as to the ways in which they develop and maintain such networks. Educational settings may be a source of support or distress depending on the nature of the relationships formed in them. Education has the capability to promote social integration and civic engagement, and to widen social networks.

Qualifications

Qualifications are classified separately here because they are not a feature of the individual, they are something that an individual earns and possesses and can use as a signal in the labour market or as a signal to themselves about their own capabilities. Qualifications can also be a signal to others, but they are not an actual attribute, they are not a feature of an individual. In other words, an individual has a qualification; she is not a qualification.

Individuals earn qualifications from some experiences of learning and not from others and those qualifications are then very important in their interactions in social networks and in economic transactions. Qualifications can also reflect individuals' attainment, so they provide an indication of the ability to learn, as well as indicating perseverance and the ability to accomplish tasks or assignments. Qualifications may also be summary indicators of learning but they do not equate to the learning experience. Qualifications may also indicate acquisition of skills, especially for vocational qualifications. For the labour market, qualifications are signals to

employers of what individuals might have achieved and may proxy for forms of social advantage. They indicate that individuals have mastered what was taught and produced what was expected of them, which are valuable tools for labour market success. Qualifications are not always well understood and they are measured with error.

Empirical Evidence on the Role of the Immediate Outcomes of Learning

Figure 1 to Figure 3 show the relationship between some attributes of individuals at age 10 and some features of adult life, measured at age 30, controlling for a wide range of family background at age 10. This empirical evidence conditions out the impact of social class, number of children in the household, the type of housing, mother's mental health, parental interest in education, parental education itself, and other wide range features of the child's experience at aged 10. It then uses seven features of child's capabilities at age 10 and investigates which of these capabilities are most predictive of adult life success.

== Figure 1 here ==

The focus of much of the education system has been on maths and reading because there is the view that maths and reading are particularly important for adult life success. Here we explored three outcomes at age 30 using information from the 1970 British Cohort Study: lack of achieving level 4 qualifications, being in a workless household with children, and history of criminality. These outcomes are all expressed in a negative way, in the sense of a feature of social exclusion, and the aim is to compare the relative importance of maths and reading in predicting these features of social exclusion with five other features of child development at age 10.

Among these features of development we include self esteem, peer relations and locus of control (defined by the sense that children believe that events happen because of their own influence as opposed to random chance or external factors). We also include externalising and internalising behaviours, which are both indications of self-regulation. We argue that alongside maths and reading, self-regulation is a basic skill. The ability to function socially and manage emotional distress without disturbing social relationships is a basic skill that individuals need to have in order to function effectively and successfully in society and to have successful adult lives.

Externalising and internalising behaviours in the 1970 Cohort study were assessed by the teacher when the child was 10 years of age. Both of these measures are indicative of emotional distress. The correlation between externalising and internalising behaviour is 0.54, so externalisers tend also to be internalisers and *vice versa*. Externalising behaviour can be defined by acting up in the classroom: being naughty, bullying other children, stealing things, fidgeting, hitting other children. Internalising behaviour by going quiet or not responding to the teacher.

== Figure 2 here ==

The point to highlight from these three figures is that for an academic outcome, such as not getting a degree by age 30, maths and reading are very protective against that outcome (Figure 1). But for the other two outcomes, workless household with

children and likelihood of criminal offences, externalising behaviour is particularly important. Moreover, for the probability of offending at age 30, which is measured by being found guilty in a court of law or magistrates court more than once, maths and reading are not predictive of this outcome at all, but externalised behaviour is very predictive (Figure 3). We argue that this evidence suggests that self-regulation is a basic skill required to function in society.

== Figure 3 here ==

Furthermore, for living in a workless household with children, which will impact not only upon the individual but also upon his/her children, maths at age 10 does not predict this outcome, reading is predictive but externalising behaviour is more predictive (Figure 2). This raises the question: why are we focussing so much attention in the education system on maths and reading? We do not suggest that maths and reading do not matter, and they interact in important ways in self-regulation, but we argue for the need of an education system which recognises the importance of these and other wider features of development.

A Simple Model for the Wider Benefits of Learning

We have postulated that the learning experience can generate immediate outcomes such as skills, competencies and beliefs, social networks and qualifications. We also reviewed evidence showing that attributes of the individual during childhood (all of which can be immediate outcomes of the learning experience of the child) can have important associations with indicators of deprivation during adulthood. Furthermore, we showed that the association between immediate outcomes of learning and adult indicators of deprivation depends on the indicator that is being measured. We now propose a simple model for the link between learning, immediate learning outcomes and wider social outcomes.

Learning and educational experiences can generate wider benefits that are not always easily or commonly reduced to a simple monetary metric but which are nonetheless of important social value. We term this capability of learning its “social productivity”, the capacity of education to support the generation of outcomes of social value. These outcomes may be thought of in positive terms as the role of education and learning in the sustaining of positive developmental trajectories or the achievement of potential, and the formation and generation of positive life chances. Alternatively social productivity may be thought about in terms of the prevention of the many negative outcomes that tend to dominate much policy discussion, in terms of aspects of individual exclusion and community breakdown such as obesity, crime, teenage parenthood, anti-social behaviour, intolerance, mental health problems, social division, disengagement, drug abuse and social immobility. Education can play a role in the prevention of most if not all of these features of personal and social dislocation, although one cannot at all assume that the role of education is always beneficial.

Figure 4 sets out a simple model of the mediating mechanisms for achievement and description of the social productivity or wider benefits of education. In this model the factors gained through learning are expressed in terms of three particular features of individuals and their relationships with others that we described above: skills and capabilities, social networks and qualifications. This framework is useful in part

because it highlights the importance of a good understanding of the wider benefits of learning for analysing and assessing the productivity of the education system.

Figure 4 highlights the basic premise that education supports the expansion, formation and sustenance of a broad range of features of personal and social development that are important for an equivalently broad set of wider benefits that are central to public policy across the whole system of Government, influencing well-being and functioning at the level of the individual, family, community and nation. In a globalising world with ever increasing levels of technological development and intensification of economic pressures, it is vital that the education system equip children and adults to withstand the economic, cultural and technological challenges they face. Technical and academic skills are essential for this, but so are features of personal development such as resilience, self-regulation, a positive sense of self and personal and social identity. The capability of individuals to function as civic agents with notions of personal responsibility, tolerance and respect depends on these wider features of self as well as on the interaction with others in schools, workplaces, communities, neighbourhoods and through the media and other channels.

Thus, the study of the wider benefits of learning has brought us to emphasise these wider features of personal and social development as being influenced by the education system and of under-recognised social value. Therefore, we highlight the notion of the social productivity of education, the capability of the education system in its broadest sense to contribute to wide-ranging policy objectives, provided the education system can recognise and respond to the requirements that this role places on it. In other words, education is important, not just because it is economically productive but also because it is socially productive. It brings about benefits to society and there are returns to investments in education at all stages of the lifecourse because these social outcomes are of value to society, not always economically transacted, not always economically measurable, but nonetheless a benefit to society.

Empirical Evidence on the Wider Benefits of Learning

In this section, we review empirical literature that focuses on whether education has a causal impact on wider outcomes and the magnitude of its impact. As we will see below, most of this evidence focuses on highest qualifications attained or years of schooling as measures of education. For this reason, we also review the empirical evidence on the impact of adult education on wider outcomes.

Recent reviews of the empirical literature have demonstrated that education is a powerful predictor of wider outcomes such as personal health, lifestyles, wellbeing, children's education, parenting, acquisition of information and effective use of information, family planning, voting and civic participation, saving, adapting to technological change, among others (see reviews by Haveman and Wolfe, 1984; Grossman, 2005; Feinstein, et al., 2006). Here, we focus on three examples where the causal impact of education has been estimated and the magnitude of its impact quantified.

Chevalier and Feinstein (2006) first estimated a causal effect of education on reducing the risk of depression during adulthood and then simulated that policies that took women without qualifications to Level 2 in the U.K. would lead to a reduction in their

risk of adult depression at age 42 from 26% to 22%, that is a reduction of 15%; this population represents 17% of depressed individuals. Assuming that this reduction was constant throughout the working life, and with an estimated cost of depression of £9 billion a year (Thomas and Morris, 2003), the benefit of education would be to reduce the total cost of depression for the population of interest by £200 million a year.

Evidence from the USA showed that an additional year of education lowers the probability of dying in the next 10 years between 1.3 to 3.6 percentage points (Lleras-Muney, 2005). In terms of life expectancy, for people in the USA in 1960, one more year of education increased life expectancy at age 35 by as much as 1.7 years. Evidence from Sweden suggests that some of the effect of education on health was mediated by income, but not all (Spasojevic, 2003). In fact, education produced substantially greater effects through channels other than income. In monetary terms, the impact of education on health was translated into an increase in income that ranged between \$1,700 to \$17,700 dollars.

We now turn to the evidence around the impact of adult learning. Feinstein and Hammond (2004) carried out primary analysis of longitudinal cohort studies for the UK to consider whether experiences of adult learning are related to changes in adult life (see for example Figure 5). They used the 1958 cohort to examine the contribution of adult learning to a wide range of health and health behaviours. Analysis was in terms of changes between the ages of 33 and 42 years in life outcomes for adults, controlling for their development and context up to age 33. The results showed that participation in adult learning had positive effects on changes in smoking (Figure 5), exercise taken, and life satisfaction. Effect sizes are small in absolute terms. However, there is little change in behaviours during mid adulthood, and relative to this baseline, participation in adult learning is an important driver for change.

== Figure 5 here ==

Feinstein and Hammond (2004), using the methodology employed for health outcomes described above, showed that participation in adult learning had positive effects on race tolerance, authoritarian attitudes, political cynicism, political interest, number of memberships, and voting behaviour. Again, effect sizes were small, but given that there is little change in attitudes in mid-adulthood, finding an effect is substantial. Feinstein and Hammond used four indicators of adult learning, courses taken leading to qualifications, courses taken not leading to qualifications, work-based learning and leisure courses. They found that there are benefits for all four types of courses analysed, with the possible exception of vocational courses leading to accreditation. Academic courses appear to be particularly important in relation to changing social and political attitudes, but taking leisure and work-related training courses has effects on a much broader range of outcomes than taking either vocational or academic courses leading to accreditation.

Further work on the area of adult learning made the link between childhood experiences of learning and childhood development to adult health outcomes and whether adult education could change earlier patterns (Hammond and Feinstein, 2006). The study demonstrated that those who participate in adult learning have positive transformations in well being, optimism, efficacy (perceived control over

important factors) and self-rated health. The magnitudes of the associations are not very large, but they are important nevertheless. The adjusted odds for transformed well being are between 1.2 and 1.3 times greater for those who took courses than they are for those who did not. Associations were not found between participation in adult learning and sustained or transformed satisfaction with life so far, depression, excessive drinking or obesity. What we highlight about these results is that adult learning can transform poor self-efficacy to good self-efficacy for those who were engaged in school but didn't get qualifications. It can also increase self-efficacy for those who were disengaged from school and left without qualifications. In conclusion, amongst those adults who did learning between the ages of 33 and 42 we observed substantial transformations in their health outcomes.

It is important to highlight that the evidence presented so far does not prove that adult learning necessarily caused changes in health or civic participation. It could have been the case that other factors could have caused both adult education and positive changes in health and other social outcomes. However, people in this group who are having positive transformations in their lives were doing adult learning. They were more likely to have positive transformations if they did adult learning than if they did not. Hence, it might be that adult education is a safety ladder, a resource for life transformation, which is available to adults.

There is a big agenda for policy and research to understand the relationships between education trajectories, health trajectories, and employment trajectories in adult life, in order to provide better forms of learning for adults. And that there are potentially very high returns to investment in adult education as it could lead to reduced cost of ill-health and improved individual's wellbeing.

Conclusions

In the preceding section, we described findings from three studies undertaken in the Centre, in which we tested the wider benefits of adult learning, finding that education has very important relationships with health. We have also investigated the relationship between the education of parents and their children's development (Feinstein, Duckworth and Sabates, 2004), education and social cohesion (Green, Preston and Sabates, 2003), participation in post compulsory schooling and engagement in crime (Feinstein and Sabates, 2005). In general, our findings suggest high returns to learning and the capacity of education to redress social class inequalities. However, in order to achieve this aim, education has to be provided in a way that does not exacerbate social class inequalities, in other words it has to achieve equality in access and quality provided.

In this concluding section, we try to explain why, despite substantial evidence that adult learning is very important for people's lives and that the skills people developed through wider forms of educational provision are key for a large number of social outcomes, there is not greater investment in adult education. What are the barriers to developing a broader model of lifelong learning that recognises that people need to go in and out of learning throughout their lives and need support for doing that? We set out five types of political and research barriers.

The first barrier is the narrow focus on human capital and a narrow conceptualisation of economic threats to international economic competition. There is the sense that China and India represent huge competitive threats to the UK economy and therefore enhancing economic productivity, via improving the skills of the population, is central to maintaining our economic competitiveness. We believe that this is a narrow model of how economic competitiveness is generated. There are important arguments over what forms of investment will best enable the UK to respond to these perceived productivity threats. Our research is based on the premise that a well functioning society, with high levels of equality, social engagement, civic participation and opportunities for learning, will aid in sustaining good health and wellbeing to respond to the needs of new technologies. Simply increasing skills via the provision of educational qualifications, without redressing social needs, will not be particularly productive in the long run. Our research suggests that social capital, positive social networks and relationships between groups, high levels of social engagement, and personal resilience and mental health, are important for a well-functioning society that is going to be able to respond to the future challenges.

A second barrier has been around the notion that ‘early is best’. There are good neuro-scientific bases for the view that early development is hugely important and that as a society we have underinvested in early years. Resulting in our view it is good that investment in the early years has increased in recent years. Those in the adult learning sector need to develop a better response to this challenge, recognising the validity of the neuro-scientific evidence, but also putting it in the context of inter-generational transmission of success. A key element of the neurological development of the child in terms of the environmental input is cognitive stimulation and warmth in the home. These are provided by the parents, as well as by other important actors such as teachers, neighbours and other adults in the lives of children. Children learn best when they are taught by people who are also learning. So, the notion that in a very static sense early is best means that adult learning is not important is again a very narrow view that fails to recognise how we may actually input into the lives of children. In this sense, there is a double benefit to any investment in the learning of an adult, particularly an adult who is also a parent or in other ways working with children. The call is for a better response to the ‘early is best’ notion and to understand the importance of the intergenerational patterns.

The third barrier has been around the huge diversity of educational provision that there is for adults. Adult learning is not a sector like other sectors in the sense that there is a very wide range of providers, with very ranging quality, provided for very different reasons and with different ethos, funded from different mechanisms and with various methods of accountability. All of which make the adult learning sector very hard to study and evaluate. We believe that there is relatively little knowledge about what is provided for whom, when, and what the effects are. Hence, to a certain extent, policy makers are working in the dark. The sector needs to make a better response and contribution in terms of data collection and analysis if it wants its benefits to be shown more widely.

A fourth difficulty is the separation of services for children and services for adults. Through ‘Every Child Matters’ there has been a harmonisation and an integration of policy for children. Separately, there has also been some work on integrating adult services. But the breaking of the barrier between children’s services and adult services

continues to be a problem. The benefits of adult learning are broad and not experienced all in one government department so there is a separation between the funders of adult learning and those who get the benefits. In other words, the benefits of learning in terms of health may not be for the Department for Education (in whatever structural guise) but for the Department of Health, benefits of reducing crime may be beneficial for what was called until 2007 the Home Office.

Because the benefits of learning are very broad and wide ranging, it has not been straightforward to focus government on provision more broadly, although the Department for Education and Skills developed a very effective focus on skill development, on achievement of Level 2 qualifications, on achievement of basic skills and increasingly on some vocational skills. However, this has not been within a framework which recognises the very important wider benefits of adult learning and particularly of learning that might be taken not for reasons of investment, not for narrow economic purposes, but maybe more of the manner of leisure, which is our final barrier. The contrast between learning as consumption for leisure on the one hand and learning as investment for economic returns on the other, fails to recognise the very important reality that a healthy work/life balance is, in the long run, beneficial for individuals, families and communities. Learning has a very important role to play to achieve this aim. So, whether learning is considered as consumption or whether it is considered as investment needs much better conceptualisation than it has had up to recently.

References

- Blundell, R., Dearden, L., & Meghir, C. (1996). The determinants and effects of work related training in Britain. London: The Institute for Fiscal Studies.
- Brooks-Gunn, J. (1995). Children in families and communities: Risk and interventions in the bronfenbrenner tradition. In P. Moen, G. H. Elder & K. Luescher (Eds.), *Examining lives in context. Perspectives on the ecology of human development* (pp. 467-519). Washington, DC: American Psychological Association.
- Chevalier, A., & Feinstein, L. (2006). Sheepskin or Prozac: The Causal Effect of Education on Mental Health. *Centre for Research on the Wider Benefits of Learning Discussion Paper*. London: Institute of Education.
- Coleman, J. S. (1990). *The foundations of social theory*. Cambridge, Massachusetts: Harvard University Press.
- Feinstein, L., Duckworth, K., & Sabates, R. (2004). A model of the inter-generational transmission of educational success. *Wider Benefits of Learning, Research Report 10*. London: Institute of Education.
- Feinstein, L., Galindo Rueda, F., & Vignoles, A. (2004). The labour market impact of adult education and training. *The Scottish Journal of Political Economy*, 51(2), 266-280.
- Feinstein, L., & Hammond, C. (2004). The contribution of adult learning to health and social capital. *Wider Benefits of Learning, Research Report No. 8*. London: Institute of Education.
- Feinstein, L., & Sabates, R. (2005). Education and youth crime: effects of introducing the Education Maintenance Allowance programme. *Wider Benefits of Learning, Research Report 14*. London: Institute of Education.
- Feinstein, L., Sabates, R., Anderson, TM, Sorhaindo, A, & Hammond, C. (2006). The effects of education on health: Concepts, evidence and policy implications. Project Report, Centre for Innovation and Educational Research, OECD.
- Green, A., Preston, J., & Sabates, R. (2003). Education, equity and social cohesion: a distributional model. *Wider Benefits of Learning, Research Report 7*. London: Institute of Education.
- Grossman, M. (2005). Education and non-market outcomes. *NBER Working Paper 11582*. National Bureau of Economic Research, Cambridge MA.
- Hammond, C., & Feinstein, L. (2006). Are those who flourished at school healthier adults? What role for adult education? *Wider Benefits of Learning, Research Report 17*. London: Institute of Education.

- Haveman, R. & Wolfe, B. (1984). Schooling and economic wellbeing: the role of non-market effects. *Journal of Human Resources*, 19(3): 337-407.
- Jenkins, A., Vignoles, A., Wolfe, A., & Galindo Rueda, F. (2003). The determinants and labour market effects of lifelong learning. *Applied Economics*, 35, 1711-1721.
- Jenkins, A. (2006). Women, lifelong learning and transitions into employment. *Work, Employment and Society*, 20(2), 306-328.
- Lleras-Muney, A. (2005). The Relationship between Education and Adult Mortality in the United States. *Review of Economic Studies*, 72, 189-221.
- Luthar, S. S., Cichetti, D., & Becker, B. (2000). The construct of resilience: a critical evaluation and guidelines for future work. *Child Development*, 71(3), 543-562.
- Markus, H., & Wurf, E. (1987). The dynamic self-concept. *Annual Review of Psychology*, 38, 299-337.
- Marsh, H. W. (1985). Age and sex effects in multiple dimensions of preadolescent self-concept. *Australian Journal of Psychology*, 37, 197-204.
- Marsh, H. W. (1990). A multidimensional, hierarchical model of self-concept: Theoretical and empirical justification. *Educational Psychology Review*, 2, 77-172.
- Putnam, R. (1995). Tuning In, Tuning Out: The Strange Disappearance of Social Capital in America. *PS: Political Sciences and Politics*, 27(4), 664-667.
- Schoon, I., & Bynner, J. (2003). Risk and resilience in the life course: Implications for interventions and social policies. *Journal of Youth Studies*, 6, 21-31.
- Shavelson, R. J., & Marsh, H. W. (1986). On the structure of self-concept. In R. Schwarzer (Ed.), *Anxiety and cognitions* (pp. 305-330). Hillsdale, NJ: Erlbaum.
- Spasojevic, J. (2003). *Effects of Education on Adult Health in Sweden: Results from a Natural Experiment*. University of New York, New York.
- Thomas, C., & Morris, S. (2003). Cost of Depression among Adults in England in 2000. *British Journal of Psychiatry*, 183, 514-519.
- Weiss, A. (1995). Human capital vs. signalling explanations of wages. *Journal of Economic Perspectives*, 9(4): 133-154.

Figure 1: Not achieving Level 4 qualifications by age 30, BCS70 Cohort.

Predicted changes in probability of not obtaining Level 4; by age 10 capabilities, men

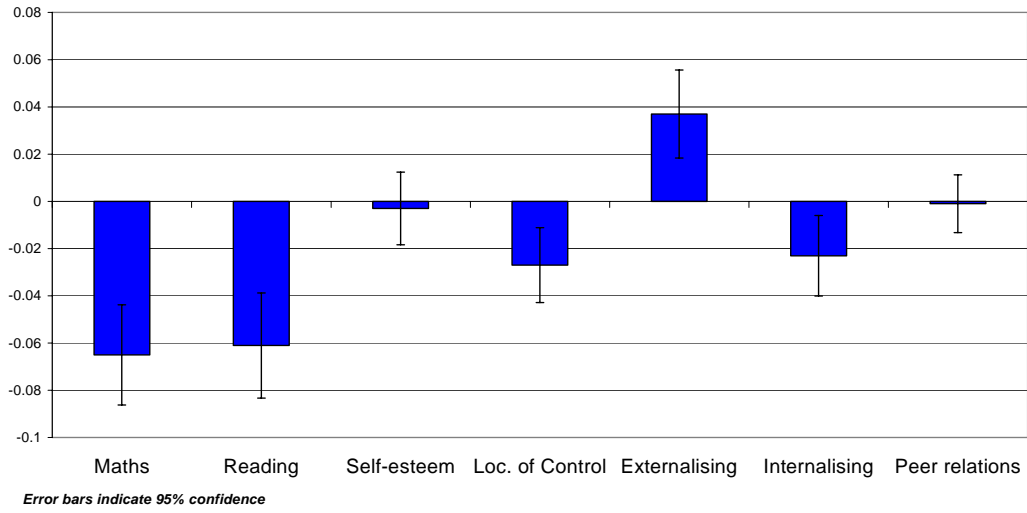
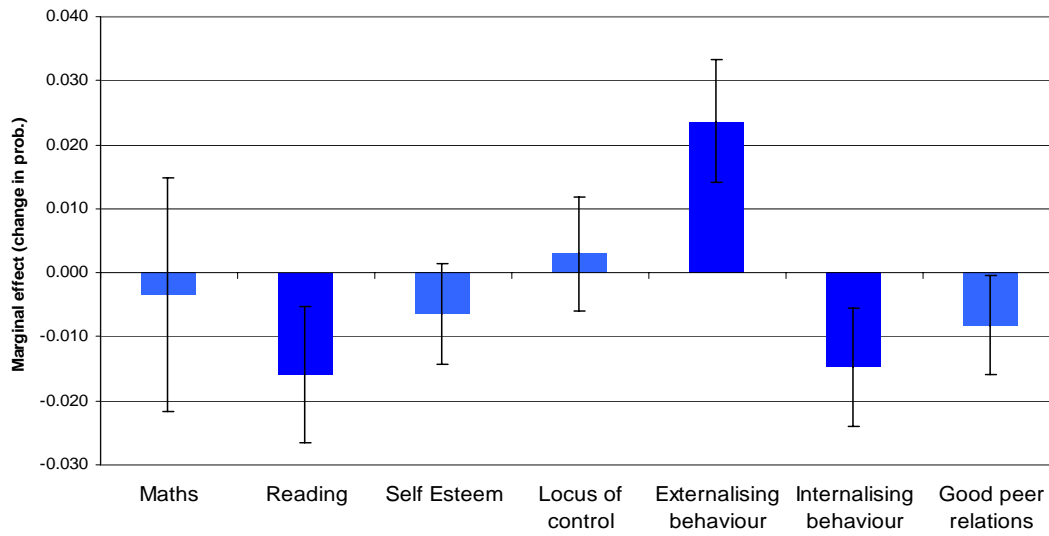


Figure 2: Probability of being workless household with children at age 30, BCS70 Cohort.



Source: Feinstein, L. and Bynner, J. (Dec 2003), 'The benefits of assets in childhood as protection against adult social exclusion: the relative effects of financial, human, social and psychological assets', Note to HM Treasury.

Figure 3: Likelihood of offending by age 30, BCS70 Cohort.

Predicted changes in probability of offending; by age 10 capabilities, men

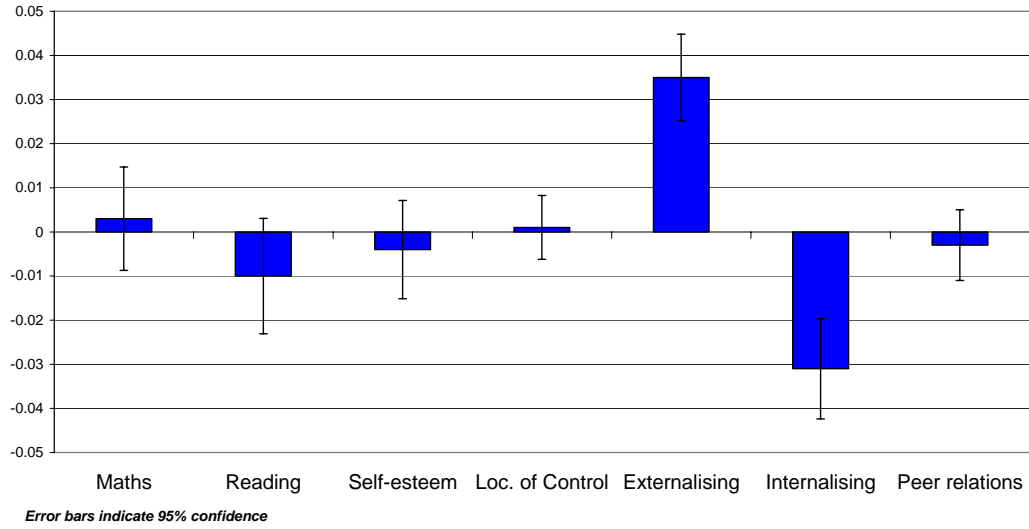


Figure 4: A simple model for the wider benefits of learning

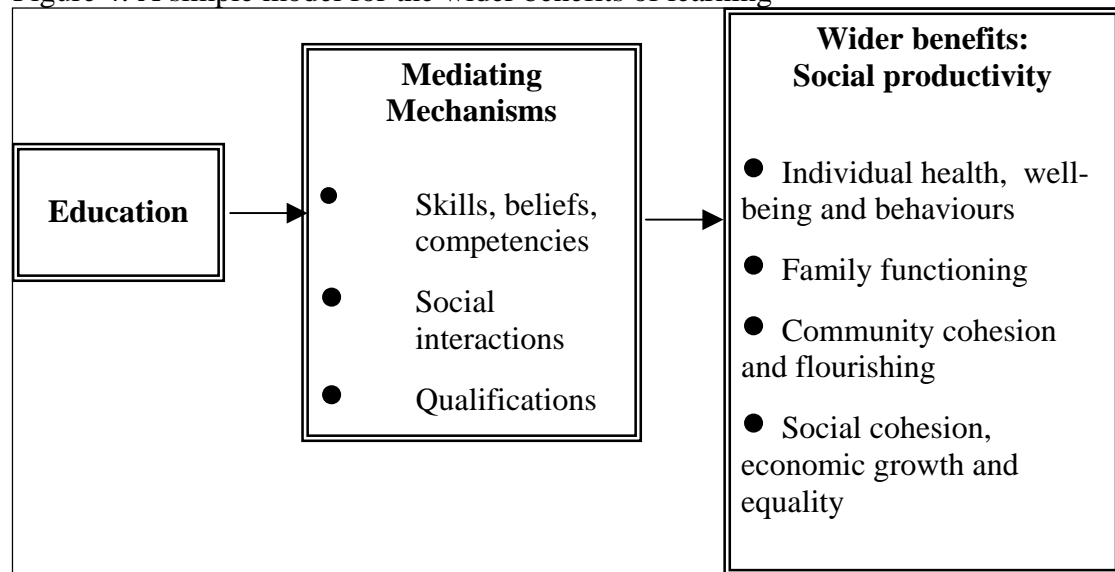


Figure 5: Effects of adult learning on giving up smoking, 1958 British Cohort.

